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ABSTRACT

A study assessed how to improve individual informed decision making by various actors in the arena of skills formation in Great Britain on the basis of existing research knowledge. Since individual decisions are situated in a complex institutional arena, two of the most important contextual relationships--schools and employers--were analyzed prior to assessing the determinants of individual decision making. These two areas of complexity in analysis of individuals' decision making were identified: large number of different types of actors and different geographical contexts for typical skill formation. Different actors had differing perceptions and different goals. Main areas of employers' interests in skill formation were reproduction of the work force, expansion of skills, and changing skills. Schools had at least these two sets of contradictory goals: to develop student competence to the best and highest level and to produce people who enter the world of work with the right attributes for employment. Outcomes involved an interaction between this broad institutional environment and various cognitive filters that operate upon individuals' decision making. Individuals' cognitive maps of training, learning, and skills formation were determined by a range of social factors, gender, social class, and ethnicity. Arenas for future action were the school system, improved career information, and social exclusion, gender, social class, and ethnicity. (Contains 116 references.) (YLB)

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The Dynamics of Decision-making in the Sphere of Skills' Formation

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Skills Task Force Research Paper 2

Skills Task Force
Research Paper 2

The Dynamics of Decision-making in the Sphere of Skills' Formation

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Skills Task Force Research Group

Foreword

The Secretary of State for Education and Employment established the Skills Task Force to assist him in developing a National Skills Agenda. The Task Force has been asked to provide advice on the nature, extent and pattern of skill needs and shortages (together with associated recruitment difficulties), how these are likely to change in the future and what can be done to ease such problems. The Task Force is due to present its final report in Spring 2000.

The Task Force has taken several initiatives to provide evidence which can inform its deliberations on these issues. This has included commissioning a substantial programme of new research, holding consultation events, inviting presentations to the Task Force and setting up an academic group comprising leading academics and researchers in the field of labour market studies. Members of this group were commissioned to produce papers which review and evaluate the existing literature in a number of skills-related areas. The papers were peer-reviewed by the whole group before being considered by members of the Task Force, and others, at appropriate events.

This paper is one of the series which have been commissioned. The Task Force welcomes the paper as a useful contribution to the evidence which it has been possible to consider and is pleased to publish it as part of its overall commitment to making evidence widely available.

However, it should be noted that the views expressed and any recommendations made within the paper are those of the individual authors only. Publication does not necessarily mean that either the Skills Task Force or DfEE endorse the views expressed.

Introduction

1. A central feature of the 1990s has been a rise in the number of reported skill shortages in Britain. The DfEE annual surveys of Skill Needs in Britain, as well as the CBI quarterly industrial surveys and the British Chamber of Commerce quarterly surveys of manufacturing and services, all report increasing skill shortages since 1992. This has coincided with the economic cycle : skill shortages have risen as Britain moved out of the recession that occurred between 1990 and 1992. However, it has also coincided with a range of policy initiatives in the 1990s explicitly designed to reduce skill shortages, ranging from the introduction of NVQs to the inception of modern apprenticeships (see Clarkson, 1998).

2. A central aim of the Skills Task Force is to ensure that **informed decisions** are made by various actors in the arena of skills' formation with a view to improving the present situation (see DfEE, 1998b). The purpose of this paper is to assess how this might be achieved upon the basis of existing research knowledge. The particular focus of the paper is upon the decisions of **individuals**. However, individual decisions are situated within a complex institutional arena and the paper provides an analysis of two of the most important contextual relationships – schools and employers – prior to assessing the determinants of individual decision-making.

Actors in the System

3. The first area of complexity in the analysis of individuals' decision-making is that there are a **large number of different types of actors** involved in the field of skills' formation. These include central government agencies, Training Enterprise Councils, National Training Organizations and industry training boards, educational institutions, training organizations and employers (see Diagram 1). Individuals can be affected by any or all of these during their lifetime.

4. The second area of complexity is that it is possible to distinguish **different geographical contexts** for typical skill formation (see Diagram 2). At one extreme there are international labour markets for such occupations as higher-level managers and professionals as well as for a variety of technical experts. There are also distinguishable national, as well as regional and

local, labour markets. Any one of the participants in the system may be engaged at a variety of spatial levels. For example, employers may encounter international markets for their senior management, regional markets for their skilled technician and craftworkers, but far more localized contexts for the recruitment and retention of routine non-manual and manual workers. As Britain becomes increasingly enmeshed within the European Union and wider global economic relations, it seems likely that these complexities will increase rather than diminish in the next century.

Diagram 1: Institutions affecting individuals' decisions on training

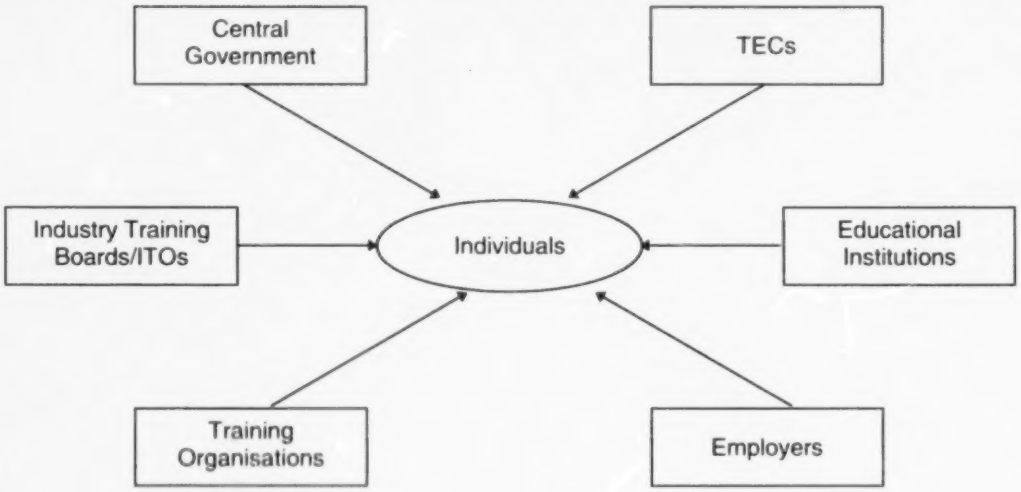

Diagram 2: Context

International	-	**Senior Management**
National	-	**Middle Management**
Regional	-	**Skilled Technician/Craft**
Local	-	**Routine Non-manual/Manual**

5. Individuals have a particular interest in skill formation. Life chances, material and non-material well-being, are all a function of an individual's position within the occupational division of labour. Some jobs pay well, others far less so. Some jobs offer job security and expanding promotional possibilities over time, others are increasingly insecure and are experienced as a dead end (see Rubery and Wilkinson, 1994). Decisions made as early as the age of fourteen within the education system either open up or foreclose future

occupational possibilities (see Halsey, 1980). These constraints increase at the age of sixteen. Indeed, a great deal of research has been undertaken into the transition from compulsory education into a variety of post-sixteen destinations (see Roberts, 1996; Brown and Scase, 1991; Raffe, 1988). Individuals are influenced by a variety of 'significant others'. These include parents, siblings, relations, friends, teachers and careers' advisors (see Penn and Scattergood, 1992). They are also influenced – as are these 'significant others' – by general ideas about the worlds of employment, education, training and occupational change. A central element within the sociological literature on these matters is the notion that knowledge, perceptions, beliefs and attitudes towards skills formation are socially structured and not shared equally.

6. Associated with this orientation is the notion that a series of **'cognitive filters'** operate within the skills' formation arena and strongly influence individuals' decision-making. Furthermore it is generally recognized that such 'cognitive filters' are asymmetric : **the least privileged in terms of social background have the least knowledge about how the system itself operates** (see Mingione, 1996; Smith, 1992; Murray, 1990).

Cognitive Maps of Skill Formation

7. The notion of a cognitive map involves a set of positive and negative elements. The positive elements constitute the principles whereby knowledge, perceptions and evaluations of skills' formation are generated: conversely the negative elements constitute those principles that render other knowledge, perceptions and evaluations absent or invisible. An important theme in research centres is on how these cognitive maps are constructed, how they are maintained and how they change (see Penn and Scattergood, 1992; Argyle, 1994).

8. A central finding is that **different actors have different cognitive maps**. In other words, the cognitive maps of employers, individuals and training organizations, for example, often diverge systematically and that there is **no inherent equilibrating mechanism** that guarantees that these maps will coalesce nor that they will generate an optimum solution for all participants.

Indeed, research findings indicate that it is more likely that divergent cognitive maps will tend towards non-integration and non-equilibrium.

9. A clear example would be the genesis and development of the Manpower Services Commission. This emerged amidst the general belief amongst politicians and pundits in the late 1970s that technological change was producing a general deskilling of the workforce (see Penn, 1990a). Even as late as 1990 local officials of the MSC opposed apprenticeship training as irrelevant for the emerging world of work (see Penn, 1998). This was very much contrary to the cognitive maps that many employers adhered to at that time. For them, particularly those in traditional manufacturing industry, apprenticeships remained an important element for skills' development (see Penn and Bragg, 1995). Indeed, during the 1980s the paper industry, for example, created a production apprenticeship to mirror the existing craft apprenticeships for maintenance workers in the industry (see Penn, Scattergood and Lilja, 1992). This paralleled developments in the steel industry, both in Britain and in Germany (see Lane, 1989). However, these negative beliefs about the decreasing relevance of apprenticeships filtered widely into the educational system and the careers service during the 1980s and 1990s. Unsurprisingly, once apprenticeships experienced a dramatic renaissance as a result of the 1993 Competitiveness Initiative, they encountered considerable scepticism from many individuals and organizations. This had been partly fuelled by the previous dominant set of training beliefs espoused by, amongst others, the MSC itself.

The Institutional Context

(a) Employers

10. Employers have three main areas of interest in terms of skill formation. This can be distinguished analytically as follows:

(i) Reproduction of the workforce
(ii) Expansion of skills
(iii) Changing skills.

(i) Reproduction of the workforce

11. Any existing workforce is a complex amalgam of an array of different types of skill. Each of these may have a distinct chronology in terms of its creation. For example, in the textile industry it generally takes around 12 weeks for a weaver to become proficient in weaving. On the other hand, it will take at least 3 years for a maintenance electrician to become proficient in the repair of such weaving equipment (Penn, 1993 and 1995). Employers need to have policies to deal with the reproduction of such existing skills : indeed, their employees may leave for a variety of reasons, including retirement. Research has shown that a significant number of employers have limited and rudimentary knowledge of these issues and poor systems to ensure a smooth continuity for their existing skill needs (see Dench, 1993a and 1993b; Milward *et al*, 1999 forthcoming). These problems have been reiterated clearly in a recent report from the Institute for Employment Studies (Hillage *et al*, 1998), which identified a wide range of problems in employers' training of young people. These included short-termism, a lack of organized or formal training and a persistence of *ad hoc*, rather than planned, solutions to training needs. Such limited knowledge at the level of an individual employer is quickly inflated into major skill shortages whenever economic activity moves towards a modern full employment situation. This is because many employers traditionally rely on external recruitment to solve *ad hoc* skill deficiencies (see Rubery and Wilkinson, 1994). However, this ceases to be an effective option as the stock of external available skilled labour reduces.

12. Some firms do have planned policies for the reproduction of their existing stock of skills. Many more do not and are essentially **reactive**. Even amongst those who do plan, many adopt a remarkably **short time frame** (see Dench, 1993a and 1993b). Very few British employers ever consider how they will reproduce their existing workforce in two years' time. Most react in an *ad hoc* way to short-term difficulties.

(ii) Expansion of Skills

13. In many situations the skills of existing workers also need to be increased or upgraded. This is particularly evident in three areas : managerial work, clerical activities and technician/craft work (see Penn *et al*, 1995). Many of these changes have been driven over the last 20 years by the influx of

computerization. This has radically changed the nature of job skills over a wide area of occupations. Once again most evidence suggests that many employers are essentially reactive and short-term in their calculations. Many complain that their existing workforces have not mastered sufficient of this new knowledge but fewer have provided sufficient resources or time to overcome this difficulty (see Penn, 1990; Dench, 1993a and 1993b). The dominant picture is one of **employers scraping through with the minimum that they can get away with** rather than a major effort to enskill their existing staff.

(iii) Changing Skills

14. During the 1980s there was much discussion about problems associated with the conventional division of labour, particularly those associated with demarcation (see Cross, 1985; Atkinson and Meager, 1985). The brave new world of the future was expected to herald the advent of multi-skilling, dual skilling and team working. However, the realities of skill change have been far less dramatic (see Penn *et al*, 1995). In most instances team work has involved co-operation between existing occupations rather than their integration into all-embracing new types of occupation (see Penn, Scattergood and Lilja, 1992). For example, electricians, fitters and welders may well now assist each other within modern factory environments but there is no systemic desire by employers to create electrician-welders. Rather, employers generally wish that electricians can acquire new electronics' skills and that welders are able to utilize the increasing variety of welding techniques on the burgeoning range of new materials (see Penn, 1990a). Overall, research has indicated that **most changes are incremental, *ad hoc* and often not the result of a coherent, long-term plan for skills' development**.

(b) Schools

15. Schools have at least two sets of contradictory goals. The first, and the one supported by the bulk of the teaching profession, is to develop each pupil's competence to the best and highest level. Schools encourage pupils to aim as high as possible, with higher education being presented and seen as the ultimate prize. Within that logic pupils are encouraged to choose the subjects which they enjoy the most and at which they excel (see Smith and Tomlinson,

1989). There is **very little emphasis placed on pragmatic issues such as the world of work until very late in the educational system** (see Burgess, 1995).

16. The second goal involves the production of people who can enter the world of work and who possess the right attributes for such employment. Some schools see this in local terms but others regard this as limiting and see the world of work in national, or even international, terms. A critical arena is the careers' advice and guidance provided within schools. Careers' advisory work in schools is often a Cinderella service (see Andrew *et al*, 1998). Research has shown that careers' co-ordinators generally do not meet their line managers to review their progress or to seek support. Unlike heads of 'subject' departments, they are not generally required to produce an annual review and development plan. Nor are careers' co-ordinators held accountable for careers' activities in a way akin to heads of department for mainstream curriculum areas. Indeed, many are marginal to the overall managerial structures of schools and colleges.

17. Recent research has also shown that most 16-year-olds pay relatively little attention to careers' information materials, either from school directly or from the Careers' Service, when deciding upon their future after the end of compulsory education (see Russell and Wardman, 1998). Furthermore, where such materials were used the research indicated that they were not used to influence broad post-16 decisions (Russell and Wardman, 1998). Rather, young people used them to confirm and reassure themselves about the decisions that they had already made.

18. It is within this institutional context that crucial decisions about education, training and future employment possibilities are made. The outcomes involve an interaction between this broad institutional environment and the various cognitive filters that operate upon individuals' decision-making.

Individuals

19. Individual's cognitive maps of training, learning and skills' formation are determined by a range of social factors. Taylor and Spencer (1994) have shown that early experiences of the educational system influence individuals'

attitudes to training and learning for the remainder of their lives. Positive encouragement and early success tend to reinforce a continuing desire to learn. On the other hand, a lack of such encouragement and poor academic performance can leave people with a fear of failure and a lack of desire to engage in formal learning in the future. This produces a twin-track, dual, bifurcated world of skills' formation. This is associated with a situation whereby most training and learning in Britain continues to be undertaken by those with the highest levels of educational qualifications (see Green, 1993; Blundell *et al*, 1994; Greenhalgh and Mavrotas, 1994). Such a pattern is also very similar in the USA (see Lillard and Tan, 1992).

20. It has also been shown repeatedly that individuals' awareness of the learning and training system is very patchy. Long-established, traditional qualifications such as A-levels or City and Guilds are relatively widely known, whilst more recent innovations such as NVQs and BTEC are far less well known. This bifurcation within the labour market between those who understand and accrue credentials and qualifications and those who do not, is closely allied to the reproduction of social inequality across the generations and is a central mechanism in the solidifying of social exclusion. Awareness and knowledge on the one hand, and lack of such awareness and knowledge on the other, centre upon families, and a wide range of social and educational research has shown how this process works across successive generations (see Douglas, 1966; Halsey, 1980; Egerton, 1997). This is not to say that it has an inexorable, iron logic. A considerable number of boys and girls from disadvantaged backgrounds do acquire qualifications and enter higher-level occupations (see Saunders, 1996; Savage and Egerton, 1997). However, their **relative** chances are dramatically less than those from advantaged backgrounds and these relative chances have changed little since World War II (see Goldthorpe, 1980; Marshall *et al*, 1988; Goldthorpe and Erikson, 1992). Nor is lack of knowledge and awareness within the family the only factor of significance : poorer families often need their children to obtain paid work as soon as possible (see Roberts and Parcell, 1992). Overall, there is no doubt that those who have been excluded from educational success have the least knowledge and awareness of the skills' formation system in contemporary Britain and that this is strongly reproduced across the generations.

Gender

21. Pregnancy, childbearing and childrearing which is traditionally seen as a female activity, affect women's decision making processes (see Roberts, 1995). Women have oriented their behaviour in relation to and the perceived 'naturalness' of these events and outcomes. This has led many to have different notions of occupational careers from men and, in particular, to have different ideas about how central paid employment is to their lives (see Hakim, 1995). Furthermore, this variation in the centrality of paid work is overlaid and reinforced by distinct views about the 'characteristics' of appropriately 'masculine' and 'feminine' occupations (see Cockburn, 1991; Carter and Kirkup, 1990). Work is gendered as 'male' or 'female' through a wide range of mediating concepts (which are themselves gendered), such as 'cleanliness', 'caring', 'dexterity' and 'physicality' (see Williams, 1989; Holland, 1988).

22. The pressures on women to resolve the conflict between familial and paid-working roles remain powerful (Gaskell, 1992). As a consequence, many women continue to choose traditionally 'feminine' training routes and occupations. They tend to prefer jobs that involve dealing with people (often in a caring or quasi-caring role) and they avoid work contexts that might cause stress, such as those where women are in a minority. It has also been shown that women value female friendships at work particularly highly (see Sharpe, 1994).

23. Recently, there is accumulating evidence that young women's aspirations are changing (Arnot *et al*, 1998; Crompton, 1993). On the one hand, they continue to be constrained by a series of **pragmatic** choices. In particular, most have a realistic understanding of the difficulties facing women in the labour market and as working parents (see Wilkinson, 1994). On the other, there is also a general increase in the desire by young women for greater economic independence. This is partly due to the steady increase in the salience of notions of equal opportunities and partly driven by the increasing likelihood that a mother with young children may well have to provide for them without a partner or spouse as a result of the increasing prevalence of separation and divorce.

24. Nevertheless, gender remains a powerful factor in determining orientations to careers and training. Women are still less likely to receive training than men and when they do, they receive on average around half as much training as men, even within the same types of occupation (see Booth, 1991; Green, 1993; Greenhalgh and Mavrotas, 1994). In other words, women in professional and managerial occupations receive half the number of days training that men receive in the same occupational grouping (see Penn, Ackerley and Francis, 1994; Sullivan, 1996; Hardhill *et al*, 1997). Women are also heavily disadvantaged by their domestic responsibilities. On the one hand, many employers are reluctant to train women with young children, perceiving them as a less sound investment than men. On the other, women find it much harder to encompass training or education outside their normal hours of work because of their domestic responsibilities and the attitudes of their husbands or male partners (see Beechey and Whitelegg (eds) 1989; Scott *et al*, 1996).

Social Class

25. Traditionally, within the social sciences in Britain, a great deal of emphasis has been placed on the division between 'middle-class' and 'working-class' images of society (see Bulmer, 1975; Bernstein, 1975). However, more recent research on the relationship between cognitive maps and social class has suggested a more complex model. Rather than a two-class model, research has indicated the importance of a fourfold categorization (see Diagram 3).

26. Professional-managerial strata have a particular frame of reference in relation to skills. It emphasizes academic, codified knowledge and abstract reasoning (see Bourdieu, 1991). Their cognitive map lays great emphasis on university education and sees it both as the norm for higher-level skills and the prerequisite for future success for their children. This orientation strongly permeates the schooling system in contemporary Britain and has a powerful purchase on a wide range of institutions that influence the operation of the labour market (see Penn and Scattergood, 1992).

Diagram 3: Social Class Maps of Skill

Professional - Managerial

Routine Non-manual (Clerical)

Skilled Manual

Non-skilled Manual

27. Routine white-collar workers also emphasize the relative importance and desirability of non-manual work (see Crompton and Jones, 1984). They emphasize both their relative proximity to professional-managerial strata and their distance from manual work which is disparaged as dirty and crude (see Penn, 1990a). They also emphasize credentials as a prerequisite for occupational success (see Penn and Francis in Penn *et al*, 1995).

28. Skilled manual workers emphasize particularly the centrality of apprenticeships for the pursuit of craft work. There is also a strong emphasis on the significance of membership of a specific 'trade' which should be defended against all-comers, including management, other trades and the non-skilled (see Penn, 1985). There is in addition a strong orientation towards self-employment : for many craftworkers the desire to set up on their own as self-employed artisans is a high priority and is a central mechanism in acceptance of relatively low rates of pay during the initial apprenticeship period.

29. The non-skilled tend to be far more short-term in their orientations towards paid employment. There is a far higher level of hedonism amongst younger cohorts : it is very much a matter of 'live now, pay later'. Most non-skilled manual jobs are perceived as relatively dull and more-or-less equivalent. The main focus of interest is pay (see Goldthorpe *et al*, 1969; Blackburn and Mann, 1978). There is relatively little interest in progressing through a lifetime career. Most non-skilled workers have few credentials or educational qualifications and there is a low level interest in training or education amongst this *stratum* (for a classic statement of this *milieu*, see Willis, 1977).

Ethnicity

30. Ethnicity is also a very powerful factor determining skills' formation in contemporary Britain. There is clear evidence that most first generation international migrants in Britain have a significantly more restricted understanding of both occupational opportunities and the training structures in contemporary Britain (see Penn, Scattergood and Danczuk, 1993). This is particularly acute in the sphere of intermediate occupations. In the case of Pakistanis, most parents who are first generation migrants hold traditional occupations like doctors and lawyers in very high esteem (see Anwar, 1989). These are very prestigious occupations in Pakistan as well as in Britain. Such parents also have a knowledge of non-skilled manual work, particularly in factories – indeed, that was the area of employment for the majority once they came to Britain as migrants (see Anwar, 1996). However, the world of intermediate occupations, particularly technician, supervisory and craft work is far less understood. Within the south Asian communities in Britain, few have experience of such employment and many employers discriminate in these areas of employment (see Penn and Scattergood, 1990; Jones, 1993; and Modood, 1997). This lack of knowledge is transmitted to their children. Indeed, in research undertaken by Lancaster University into choices made at the end of compulsory education, the small number of young Asians who expressed a desire to enter an apprenticeship often stated that they wanted an apprenticeship in occupations that did not have such training, such as nursing (see Penn, 1991). The fact that many craft and technician apprenticeships are filled not by advertising externally but by word of mouth clearly reinforces this pattern (see Penn, 1990a and 1998).

Conclusions

31. There is overwhelming evidence of reported skills' shortages in contemporary Britain. These pertain to a wide variety of geographical contexts: some are international, others are national, whilst most are far more localized in nature. Decision-making within the sphere of skills' formation is complex. In particular, **different actors have differing perceptions and different goals**. This may not produce an equilibrating situation. Indeed, it is clear from the wide array of research findings reviewed in this paper that such an equilibrium has not pertained during the last 30 or 40 years. Nor will an equilibrium be produced by improving knowledge and information *per se*. This is for three

reasons. Firstly, knowledge and information are often **selected after** decisions have been made. Research has shown that pupils in their final year of compulsory education (year 11) often use information about careers' opportunities and labour market conditions to justify their decisions *ex post facto.*

32. Secondly, there is a bewildering array of information about training, labour market trends, occupational developments and job opportunities. **Much of it is contradictory**. This was illustrated graphically in the August issue of the Skills and Enterprise Update, which is a digest of recent labour market research produced by the Skills and Enterprise Network. In this issue two reports received prominent coverage in the section on 'Skills'. The first was 'Skills for Competitiveness' (1998) from the British Chambers of Commerce which made a series of proposals to 'tackle skill needs'. These included demands for 'greater flexibility'. White and Forth, on the other hand, in their PSI research on 'Pathways through Unemployment : the Effects of a Flexible Labour Market' (1998), argued (in the same issue under the heading 'Flexible Employment hinders the Job Market') that increased flexibility in the job market had not helped previous, and will not help current, skill shortages. Such examples can be multiplied many times over. Part of the difficulty is that **terms like 'skill', 'skill shortage' and 'flexibility' are both evaluative and inherently ambiguous**. Indeed, research conducted at Lancaster University for the ESRC's Social Change and Economic Life Initiative in the late 1980s (see Penn *et al*, 1995) showed that 'skill' had four quite distinct meanings for respondents and that these meanings varied systematically according to respondents' gender, levels of education, forms of training and occupational level.

33. The third obstacle to any equilibrium can be illustrated in the following example. Let us imagine that somehow it was possible to ascertain that in ten years' time only 10% of current 16-year-olds would need a degree for their job. Is it likely that 90% of this age group would decide spontaneously to abandon their hopes and plans for higher education based upon this knowledge? It is far more likely that the present trend for an increasing demand and desire for higher education would persist and the net effect would be that the job market for those with degrees would become far more

competitive over the next decade. It is also probable that a process of 'credentialism' would ensue whereby jobs that traditionally had not required degrees would use them as a new entry requirement. Only a draconian reduction of higher education places could ensure an equilibrium.

Suggestions for Action

34. However, such general conclusions should not lead to a situation of contemporary inaction. **There are clear problems within the sphere of skills' formation that should be addressed and which can significantly improve the present situation**.

35. The first arena for action should involve the school system. In particular, careers' activities should be given far more prominence and should begin well before the end of compulsory education (year 11). Indeed, it is arguable whether current work experience programmes for year 11 pupils have much value as presently constructed. They appear very limited in scope and of little value to most pupils. There is an urgent need for a **radical rethink** here. Issues to be addressed must be the **extraordinary lack of knowledge that most young people have of the world of work**. Manufacturing industry in particular is barely understood by the vast majority of secondary school pupils. This could be addressed by improved partnerships between schools and employers, by the production of high-quality videos that describe the world of work, the variety of occupations and the credentials and qualifications needed for such jobs. There is also a need to address the significance of parents within this arena of decision-making. Research has revealed the asymetric cognitive maps that most parents possess. This is particularly evident in the area of international migrants who have a systematically distorted knowledge of the world of work and who generally lack awareness of intermediate occupations in Britain. Parents need information well before their children are in year 11 and many ethnic minority parents would benefit from videos produced in their native languages. Given the high levels of illiteracy in India, Pakistan and Bangladesh, it is almost entirely pointless to produce written materials in languages such as Urdu, Punjabi, Hindi or Bengali. Greater use could also be made of Asian-language radio stations and satellite channels. Indeed, this issue transcends the issue of ethnicity. Young people in general receive a great deal of their information

from a variety of media sources. Part of a national strategy to improve awareness and understanding of issues relating to skills' formation should include dissemination through the full range of media, particularly television and radio.

36. Another area for action involves more general efforts to improve the careers' information currently available on computers for young people and to increase significantly the number of access points where young people can scroll such data. The model could be the medical diagnostic systems that are emerging in the field of health care. Here patients can report symptoms and receive guidance on appropriate treatments. In the field of training, careers, skills and jobs, such a programme should provide clear pictures of the world of occupations and scenarios of possible career trajectories, including information on continued training and educational requirements. The present programmes lack such a dynamic orientation.

37. It is unlikely, however, that such a programme could be written easily at present. In particular, there is a dearth of knowledge about newly emerging occupations in areas like biotechnology, telecommunications, advanced materials, health care and financial services. This is very much the responsibility of the academic community which has neglected these areas in favour of abstract reasoning and non-empirical research. There is a strong case for a partnership between the DfEE and the ESRC – along with employers' organizations and trade unions – to develop a research initiative to explore the emerging world of work in the next century.

38. Lack of knowledge about how the world of occupations is changing is compounded by the crude and now rather archaic categories used by Government agencies and academics alike, particularly those measuring 'occupation' and 'industry'. There is currently some work in progress on these issues but this needs to be strengthened and integrated into the arena of skills' formation and training.

39. Action in the areas of social exclusion, gender, social class and ethnicity can only be effective if it is situated within the context of the cognitive maps that affect individuals. Decisions about training and skills' formation are made

through the cognitive prisms that affect individuals in differing situations. Much of the information about training and skill is couched in language that is readily understood by those who have already succeeded within the educational system. However, it is not seen in the same light by those who are used to failing. Rather, much that is on offer looks remarkably like a re-run of painful experiences endured when such people were younger and lacks appeal to them in consequence.

40. Furthermore, women are far more likely to constrain their choices as a result of domestic pressures. Assistance with childcare will help to a degree, but there are much more powerful constraints that centre upon the internal dynamics of households and the domestic division of labour (see Summerfield, 1998). This is even more pronounced amongst some ethnic minority groups where the norms about being a wife and a mother often preclude notions of careers or even paid work outside the home. Research since 1945 has shown how powerful these social factors are in British society and how difficult they are to change. In particular, it has shown how they continue to be transmitted across the generations in a wide variety of ways.

41. The central conclusion of this report is, therefore, that decision-making in the sphere of skills' formation is complex. There is scope for a wide range of changes to improve the current inadequate situation. However, there is not a set of solutions which can guarantee an end to skill shortages or to the mismatches between the expectations of individuals and those of employers and other agencies concerned with issues of training. As the world of employment changes there is a continual need to develop policies and programmes that integrate the divergent elements surrounding skills' formation to the best possible degree.

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